Natural Gas Working Group Meeting

California Energy Commission

Sacramento, California
June 4, 2009

Comments of
Pacific Gas and Electric Co

Pacific Gas and Electric Company

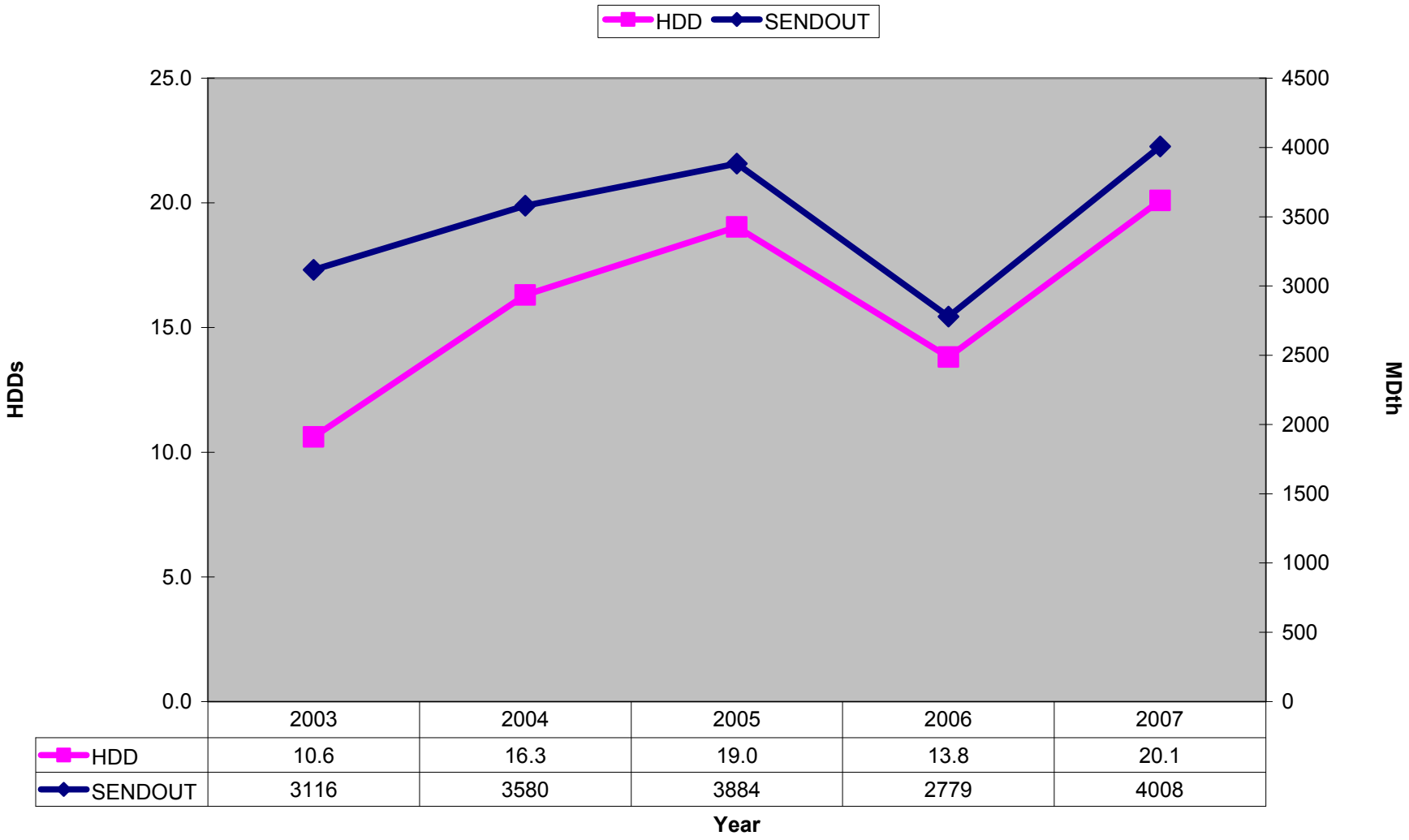
Focus of Today's Presentation

- CEC Infrastructure analysis
- Other tools that could be used to analyze infrastructure adequacy
- PG&E's infrastructure plans

Winter Peak Demand Trends

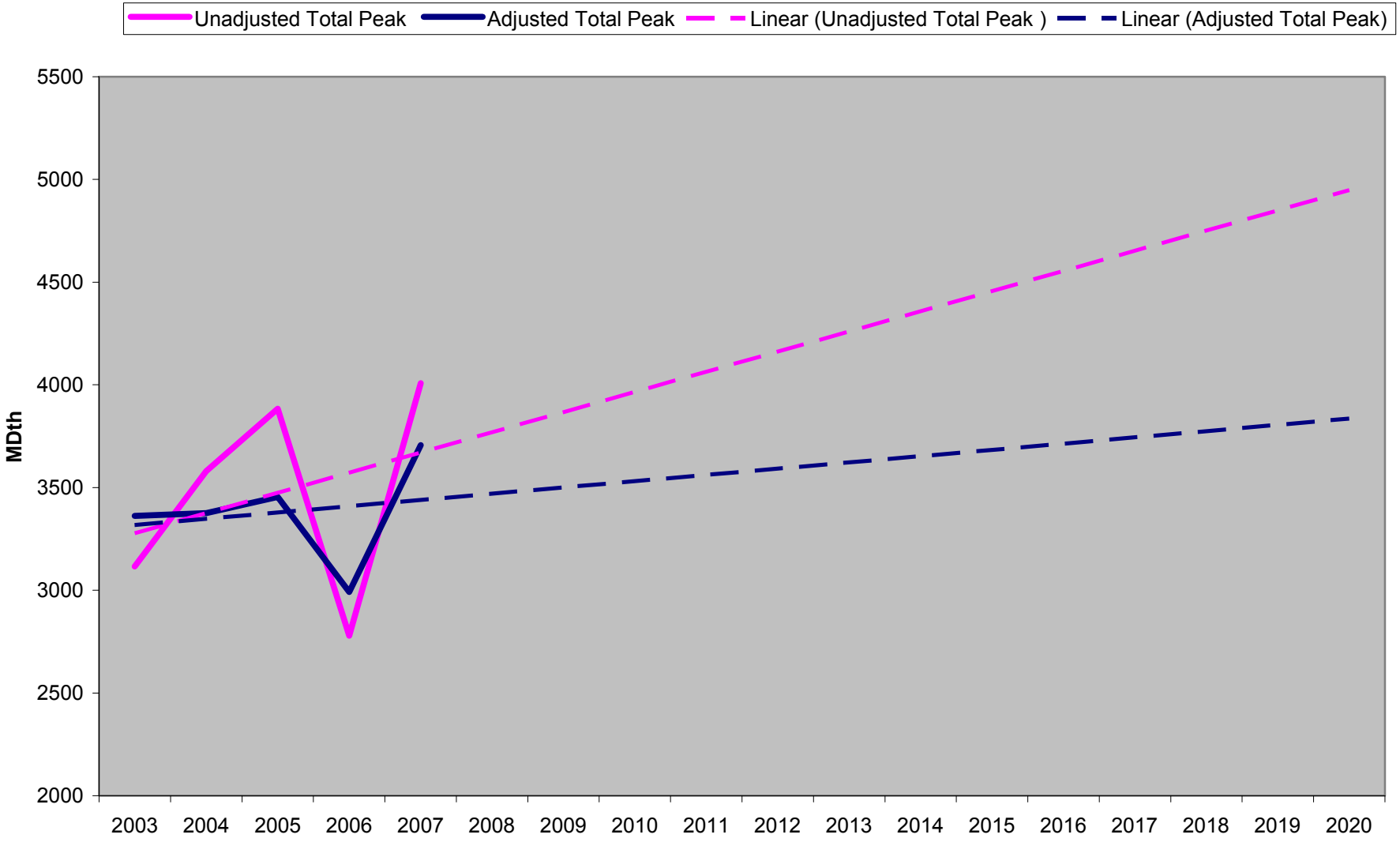
- Peak and temperature-adjusted natural gas demands
  - Example showing January gas sendout
  - Demand trends in the draft infrastructure paper also could be adjusted to account for economic indicators and other factors
    - The trend analysis should incorporate a greater number of years of data

Example: Relationship Between Heating Degree Days and January Peak Gas Sendout



	2003	2004	2005	2006	2007
HDD	10.6	16.3	19.0	13.8	20.1
SENDOUT	3116	3580	3884	2779	4008

Unadjusted and Temperature-Adjusted Sendout (2003-2007)



PG&E's Updated Assumptions for the Infrastructure Analysis

- PG&E's Redwood and Baja path capacities
- PG&E's storage deliverability has increased with improvements at McDonald Island and the construction of Line-57C

(MMcf/d)

Supply Point	Peak Supply			Limited Supply Capacity		
	CEC	PG&E	Delta	CEC	PG&E	Delta
Malin	1850	2021	171	1850	2021	171
Topock	1140	1073	-67	1140	1073	-67
Storage	1500	1957	457	400	1451	1051
Total			561			1155

  - In addition, the proposed Wild Goose Expansion and new planned storage (Gill Ranch Storage, Central Valley Storage and Sacramento Natural Gas Storage) would add over 1500 MMcf/d to the Peak Supply

PG&E's Updated Assumptions and Observations

- The short-term winter peak day analysis should reflect updated supply and demand assumptions
  - The Peak Winter Trend demand forecast should be normalized to account for temperature variation and other factors
  - The Peak Supply should be increased by at least 561 MMcf/d based on existing PG&E infrastructure and by more when new storage projects are included
- The long-term high winter demand analysis
  - The Limited Supply Capacity assumptions need to be adjusted upward
  - The probability of occurrence of the gas demands used in this long-term analysis is much lower than 1-in-35

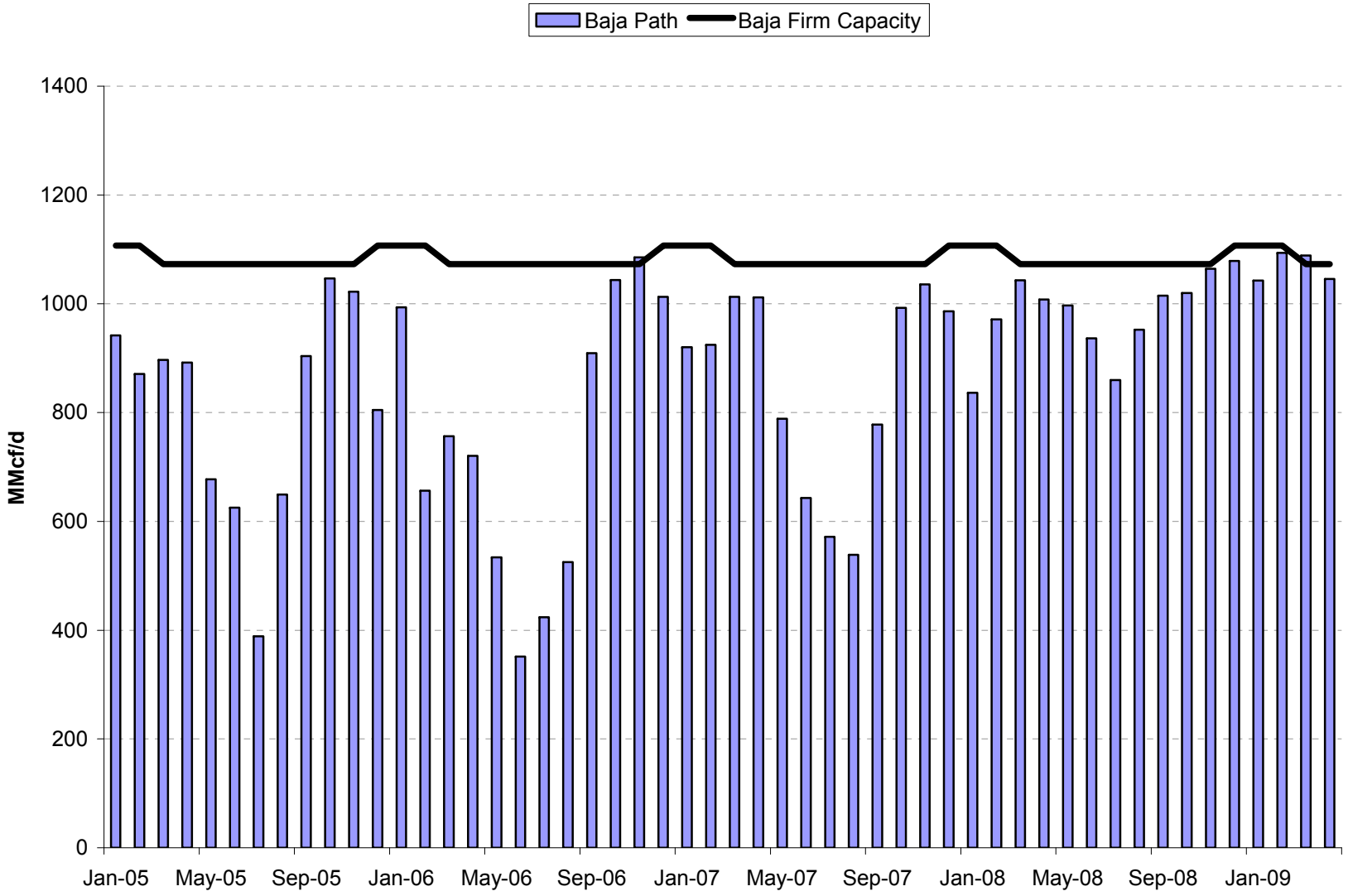
Other Ways to Analyze Western Infrastructure Adequacy

- Additional work for the final version of the paper could include:
  - An analysis of the interstate pipeline capacity and natural gas demands in the western United States
  - An analysis using the CEC's economic model, which provides a robust means for analyzing infrastructure adequacy
    - Developing stress scenarios to analyze infrastructure adequacy with different supply and demand assumptions
    - Scenarios can also be used to show the impact on gas prices after constraints are added

Given the supply and demand outlook what new infrastructure projects will be developed?

- New pipelines will debottleneck Rockies and Midcontinent supplies
  - Extension of Rockies Express to Ohio (2009)
  - New pipelines eastward out of Texas shale plays (2009)
  - Ruby pipeline brings Rockies gas to CA (2011)
  - Possible Kern River pipeline expansion
- Additional storage in California
  - Growth in EG market increases demand for storage
  - Plans to use gas-fired generation to backstop renewable generation
- Additional Baja path transport to accommodate lower priced southwest supplies

PG&E's Baja Path is in high demand by the market



PG&E's Baja Path is Expected to Remain in High Demand

- Average path flows over the last 12 months have been 1016 MMcf/d
- PG&E's modeling results are similar to what the market is indicating
  - The path should be in relatively high demand even with Ruby pipeline

PG&E's Baja Path Open Season

- Determine additional interest in Baja path capacity
- Open Season material was posted on Pipe Ranger on May 15
- Open Season closes on June 8

Baja Path Open Season: two capacity offerings

- 30 MDth/d starting December 1, 2011
  - All path receipt points
  - Minimum term 12 months, maximum term 120 months
- 200 MDth/d starting January 1, 2013
  - Limited to a new Arvin interconnect
  - Minimum term 60 months, maximum term 180 months


Proposed Arvin Interconnect
Malin
Tionesta
Burney
400/401
Gerber
Delevan
SACRAMENTO
SAN FRANCISCO
Bethany
Kettleman
Kern River Station
Freemont Peak
Hinkley
Daggett
Essex
300
Topock North
Topock South
LOS ANGELES
SAN DIEGO
Proposed Arvin Interconnect
PG&E L-300
Kern/Mojave Pipeline

Appendix 1

Backbone Capacity Reserve Margin – 2008 analysis

- PG&E's July 1, 2008 compliance filing resulting from Phase II of 2004 Gas OIR
- The Commission guideline for backbone transmission capacity:
  - Requires the utilities to assure adequate backbone transmission capacity under 1-in-10 cold and dry conditions
  - Adequate capacity exists if utilization is less than 80-90% in a 1-in-10 cold and dry year

Year	Average Demand (MMcf/d)	1-in-10 Cold and Dry Year Demand (MMcf/d)	Backbone Receipt Capacity (MMcf/d)	Capacity Utilization Cold and Dry Year Demand
2009	2167	2341	3249	72%
2010	2195	2372	3249	73%
2011	2226	2405	3249	74%
2012	2158	2337	3249	72%
2013	2153	2336	3249	72%
2014	2128	2311	3249	71%
2015	2120	2305	3249	71%
2016	2143	2326	3249	72%
2017	2170	2358	3249	73%
2018	2199	2390	3249	74%